2019 Ultra-short season soybean – yield and its components

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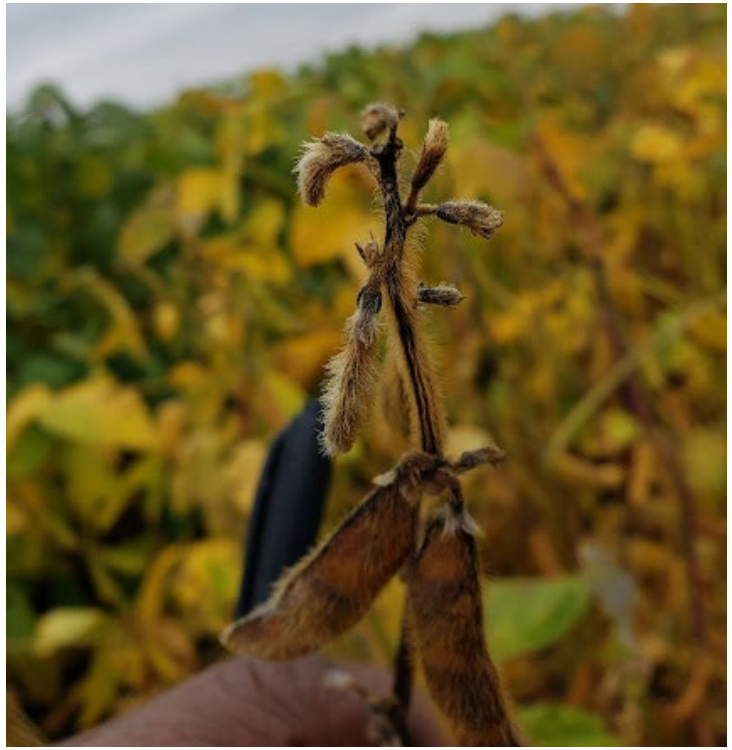


Soybean in Saskatchewan

- Soybean (*Glycine max* Merr.) is a warm season crop, rich in oil and protein.
- Expanding in western Canada,
- Adapted to a wide range of soil types in Saskatchewan
- Sensitive to drought
- Requires sufficient heat to perform well and mature in time
- Ultra early-maturing (< 2450 CHU) are needed

What we did in 2019

- Two sets experiments (SB Leo and SB Ros) each with 24 conventional and GMO soybean from industry and breeding programs were tested across four locations (Rosthern, Saskatoon (dryland and irrigated), Broderick (irrigated), and Kamsack) in SK.
- Objective: To evaluate yield and its components of Maturity Group 0, 00, and 000 cultivars representing the range of early maturity currently available for western Canada.

Variety lists

Set I - SB Leo

Variety	MG	SMG	Earliness
90A01	MG000.7	MG000.7	SUE
AAC Halli	MG000.9	MG000.9	SUE
Maple Presto	MG000	MG000.9	SUE
AAC Edward	MG00.4	MG00.4	UE
AAC Springfield	MG00.2	MG00.2	UE
Maple Isle	MG00	MG00.4	UE
OAC Ayton	MG00	MG00.3	UE
OAC Prudence	MG00.3	MG00.3	UE
AAC Malika = OT11-03	MG00	MG00.9	E
AAC Mandor	MG00.6	MG00.6	E
AC Harmony	MG00	MG00.5	E
Accord	MG00	MG00	E
Alta	MG00	MG00.6	E
Bloomfield	MG00.6	MG00.6	E
Jari	MG00.9	MG00.9	E
Maple Arrow	MG00	MG00.6	E
Maple Glen	MG00	MG00.9	E
Maple Ridge	MG00	MG00.5	E
Misty	MG00.6	MG00.6	E
OAC PETREL	MG00.5	MG00.5	E
OT15-02	MG00.6	MG00.6	E
OT15-03	MG0	MG0	E
OT15-04	MG0	MG0	E
Roland	MG00	MG00.9	E

Set II - SB Ros

Cultivar	MG	MG	Earliness
90A01	MG000.7	MG000.7	SUE
AAC Halli	MG000.9	MG000.9	SUE
Fresco R2X	MG000.7	MG000.7	SUE
NSC LEROY RR2Y	MG000.6	MG000.6	SUE
NSC Watson RR2Y	MG000.8	MG000.8	SUE
PR110212Z046 Siberia	MG000.6	MG000.6	SUE
S0009-M2	MG000.9	MG000.9	SUE
TH89005R2XN	MG000.5	MG000.5	SUE
X5897-1-S1-6	MG000.9	MG000.9	SUE
AAC Edward	MG00.4	MG00.4	UE
AAC Springfield	MG00.2	MG00.2	UE
Maple Amber	MG00.3	MG00.3	UE
Maxus	MG00.2	MG00.2	UE
NSC Newton RR2X	MG00.3	MG00.3	UE
NSC Reston RR2Y	MG00.1	MG00.1	UE
OAC Prudence	MG00.3	MG00.3	UE
TH33003R2Y	MG00.3	MG00.3	UE
TH87003R2X	MG00.3	MG00.3	UE
Torro R2	MG00.1	MG00.1	UE
AC Proteus	MG00.6	MG00.6	E
NSC Sperling RR2Y	MG00.6	MG00.6	E
OAC Morden	MG00.5	MG00.5	E
S007-Y4	MG00.5	MG00.5	E
Trail	MG00.9	MG00.9	E

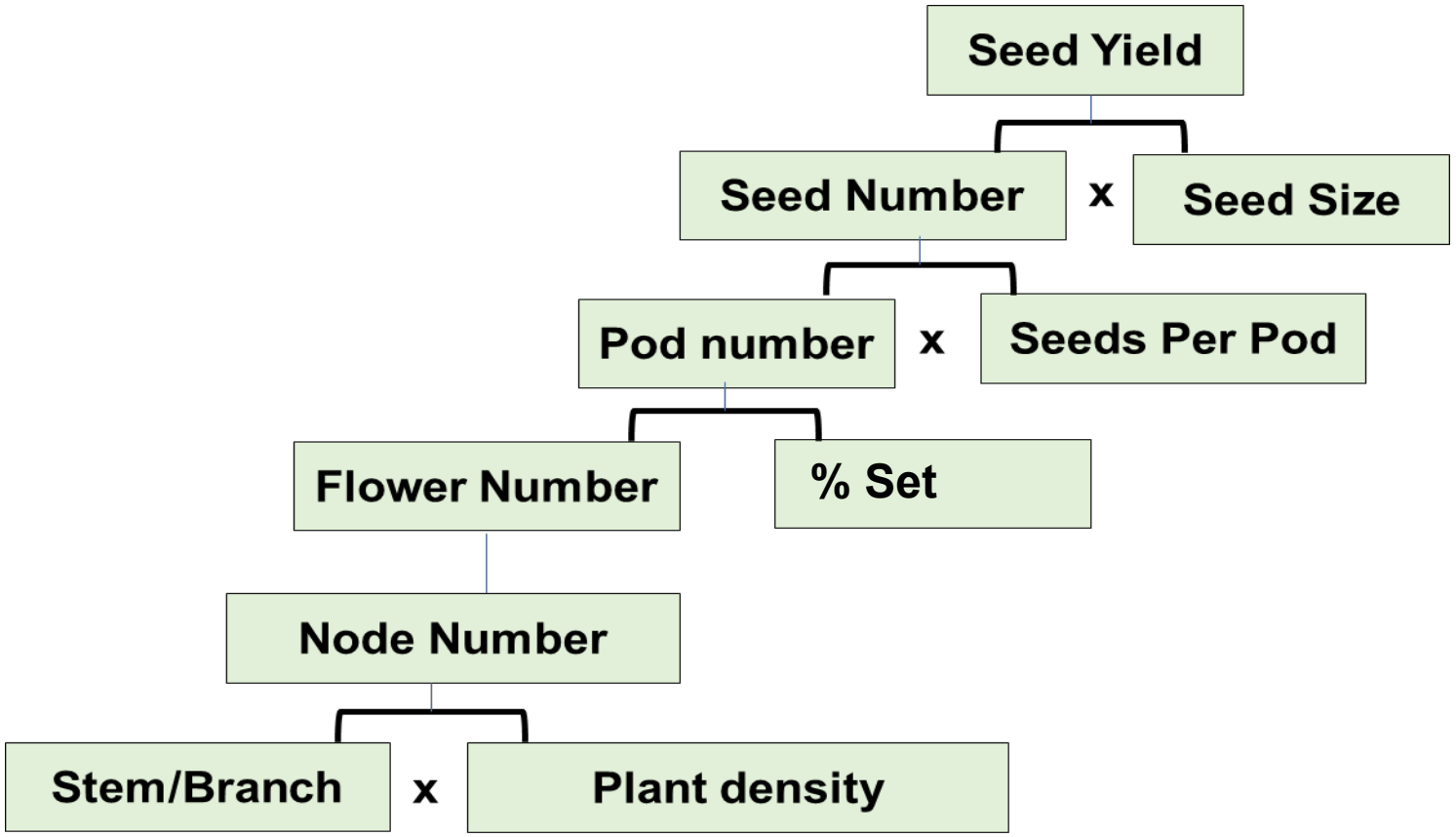
Earliness

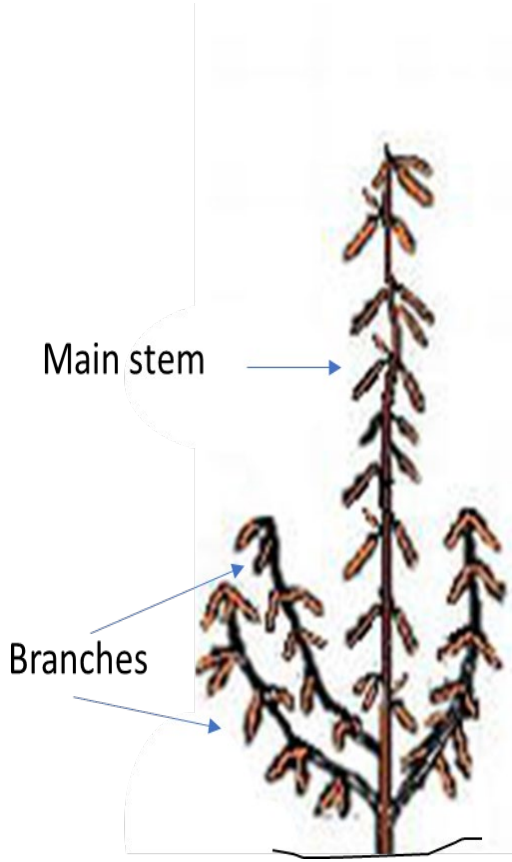
Super ultra early (SUL)
= MG 000

Ultra early = MG 00.1 to 0.004

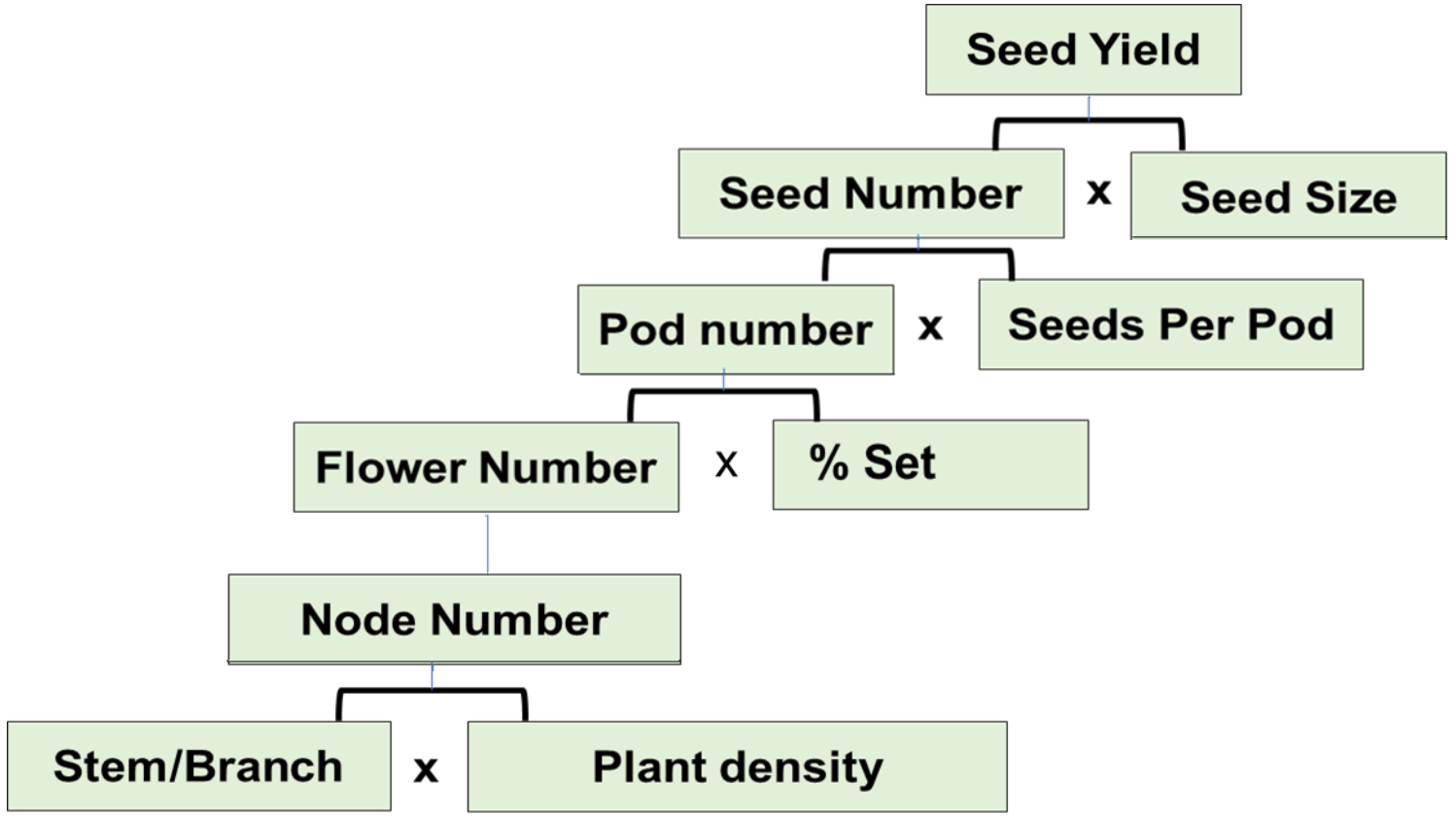
Early = MG 0.005 to 0

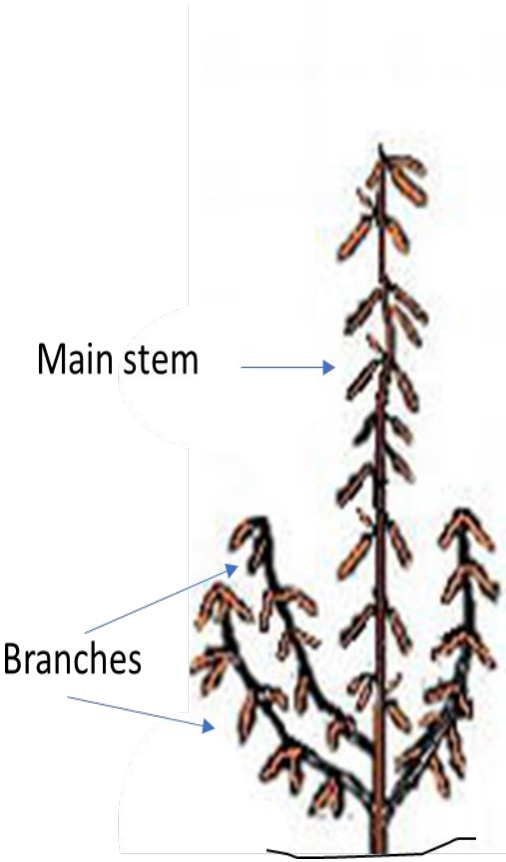
Yield Components



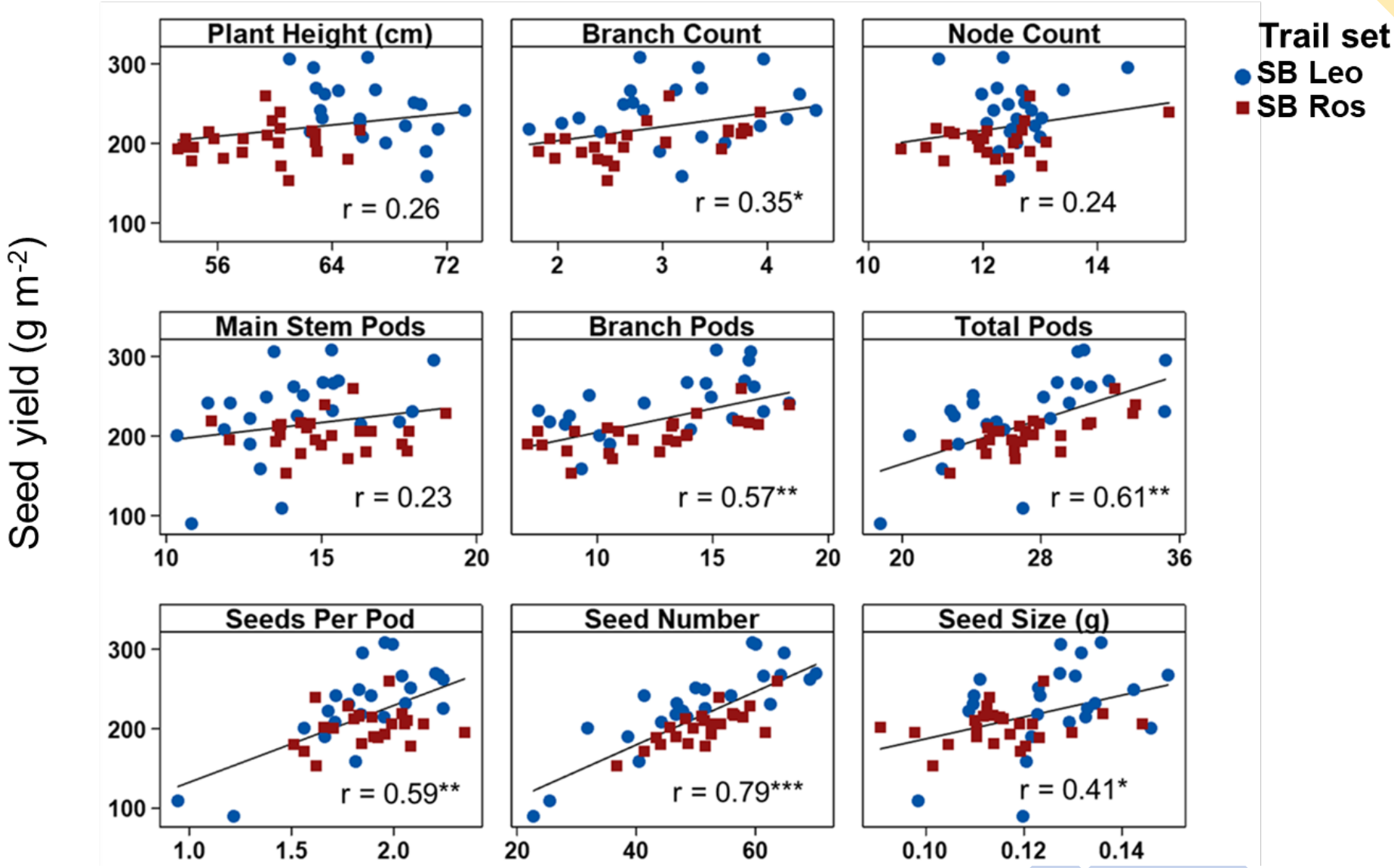


Yield Components

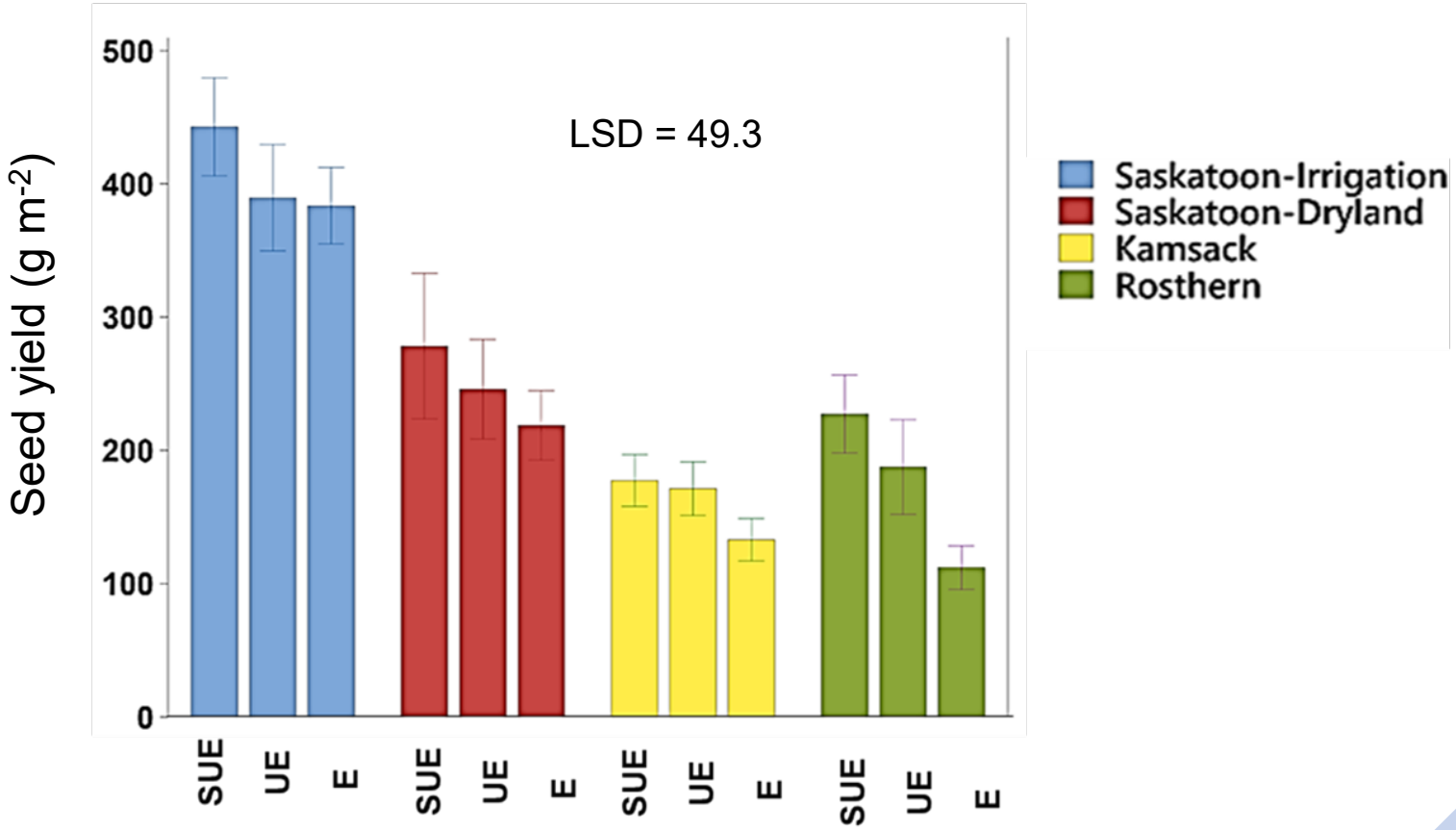




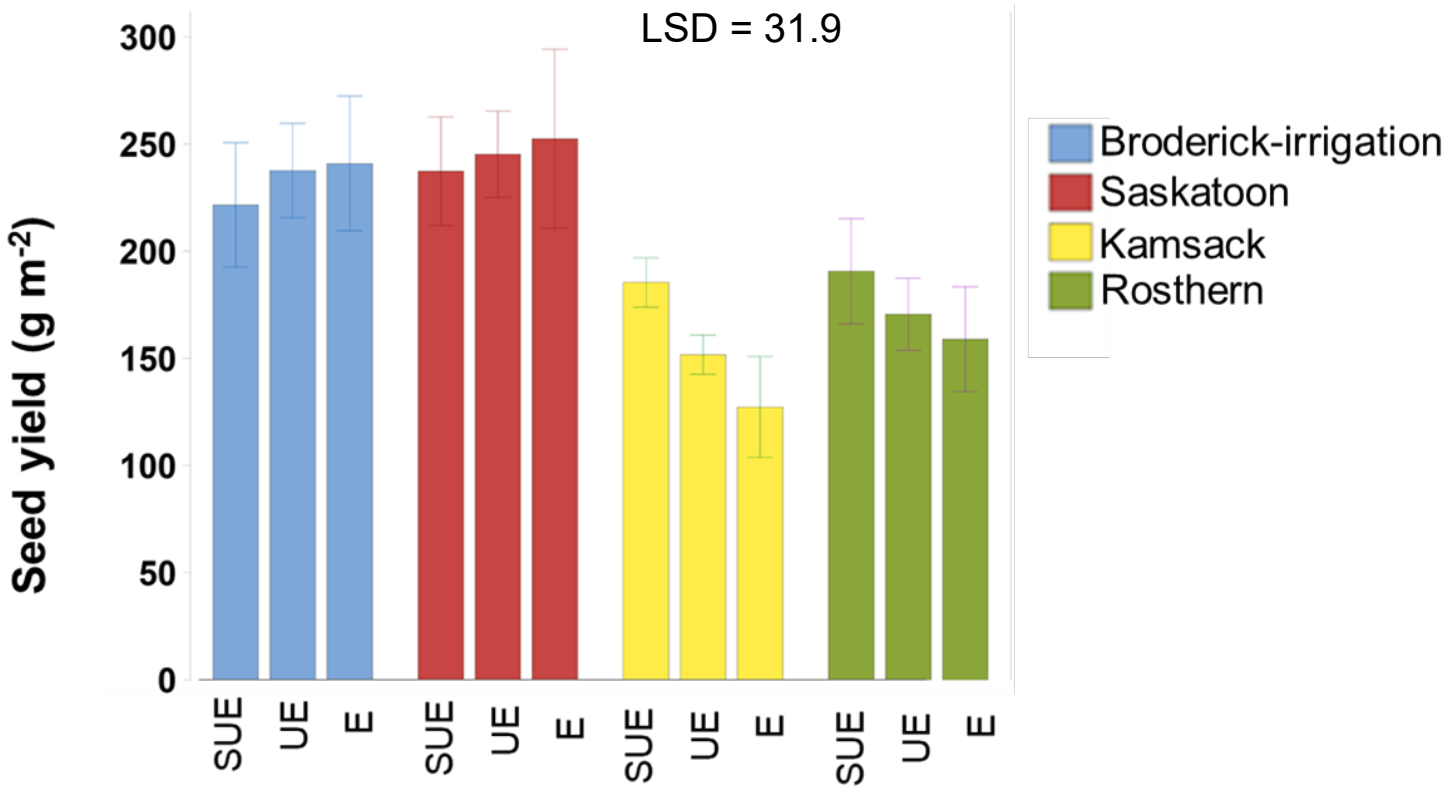
Yield components contribute to seed yield



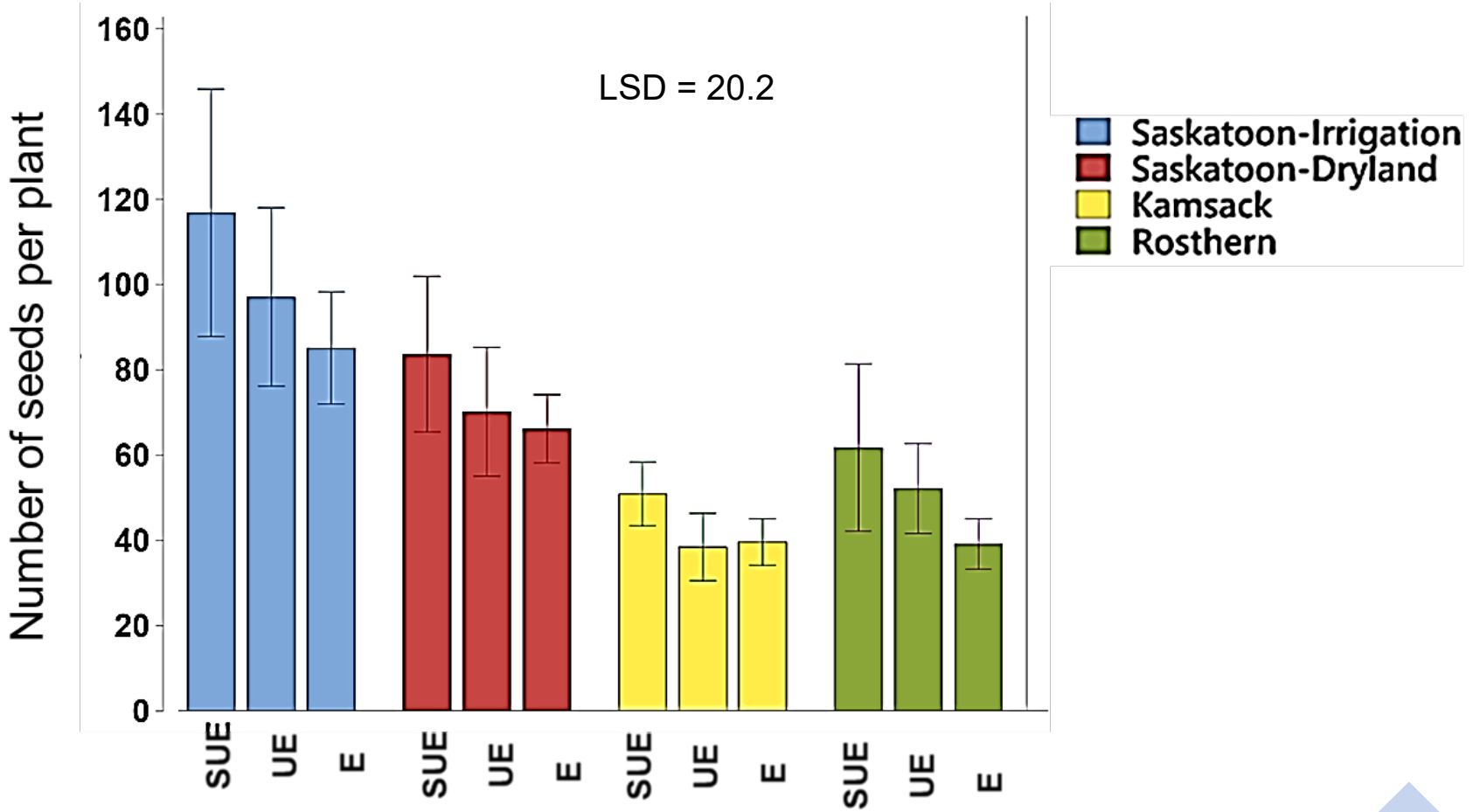
Seed yield and its components response to environment and maturity groups – SB Leo



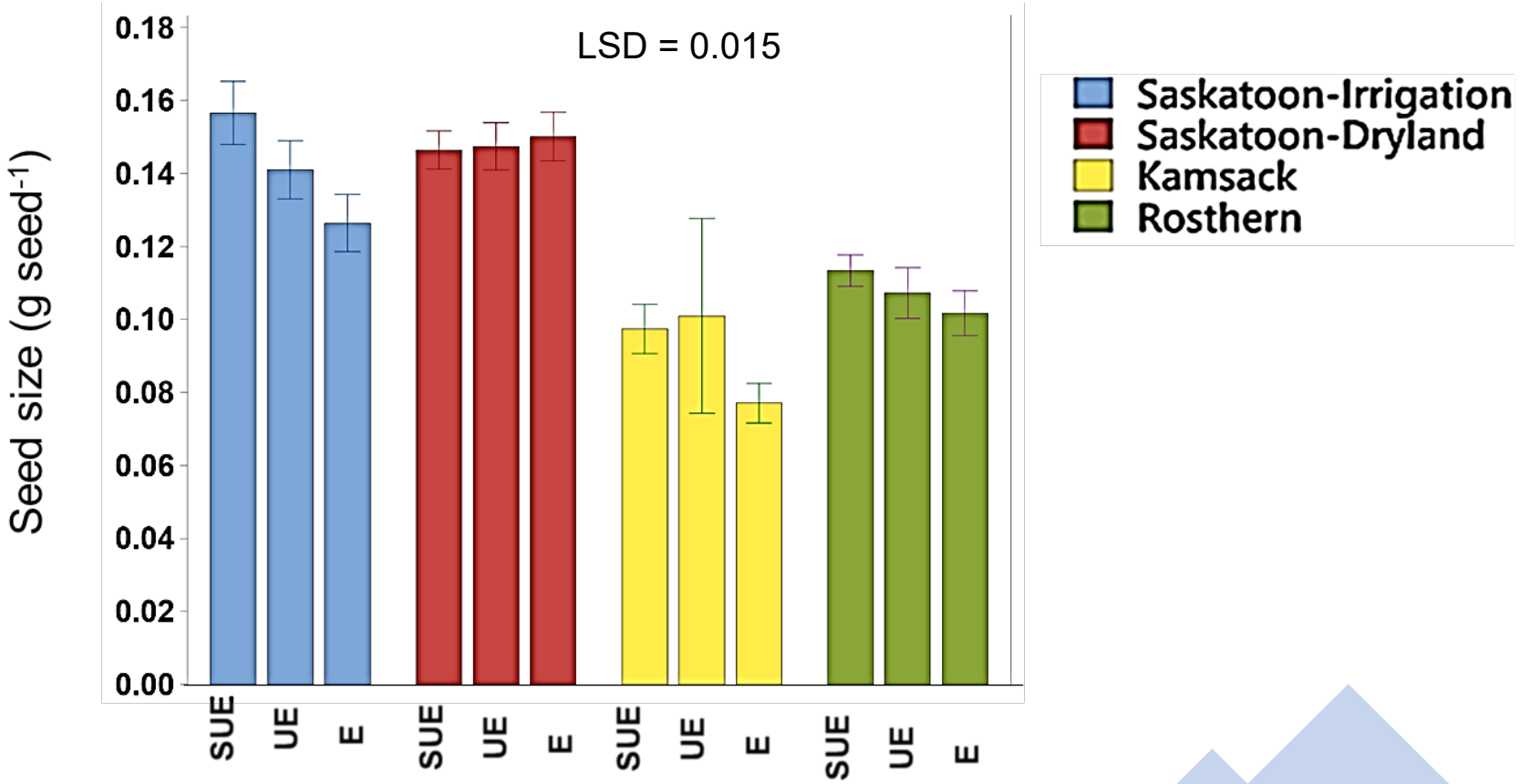
Seed yield – SB Ros



Number of seed per plant – SB Leo

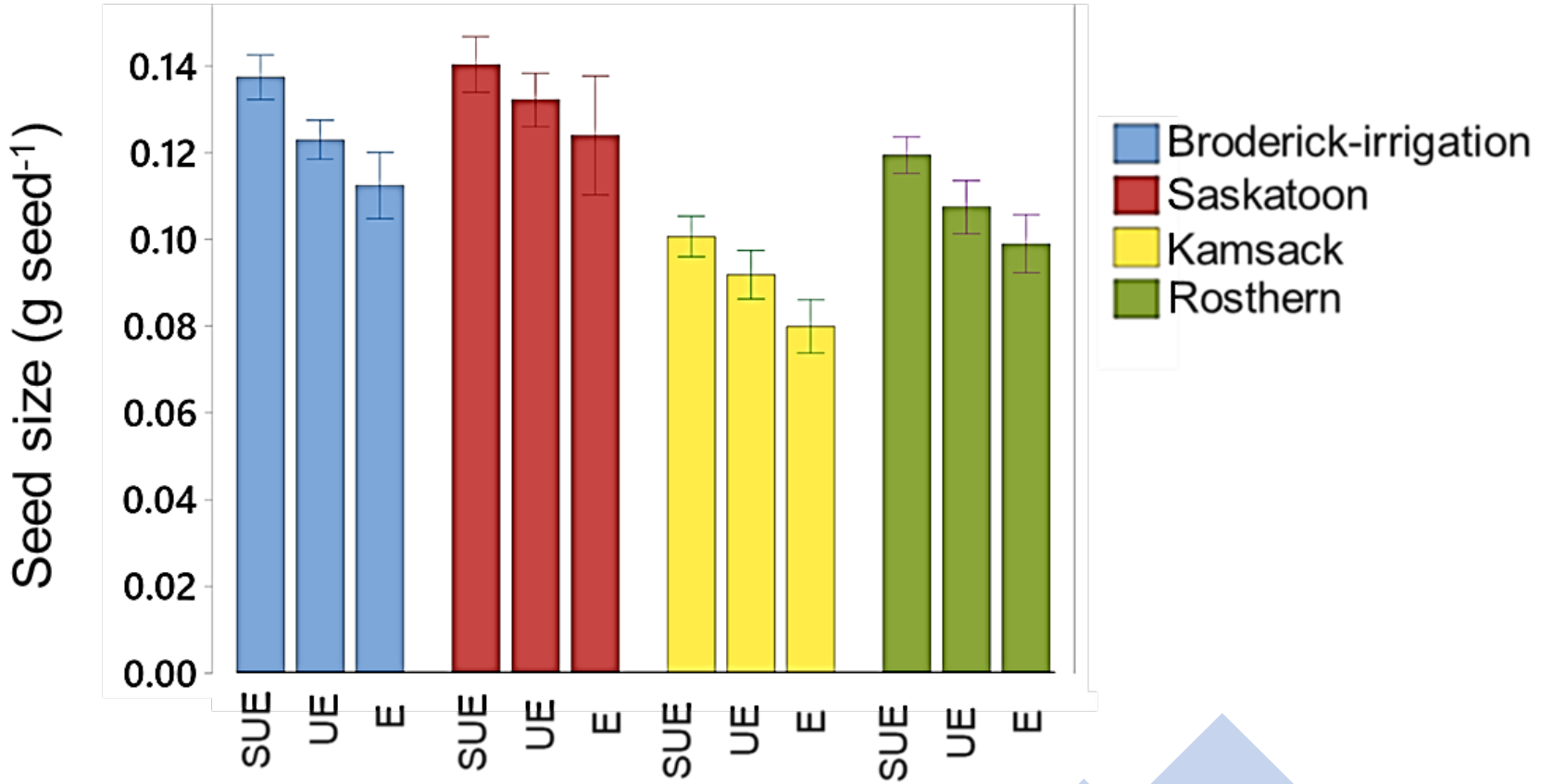


Seed size – SB Leo

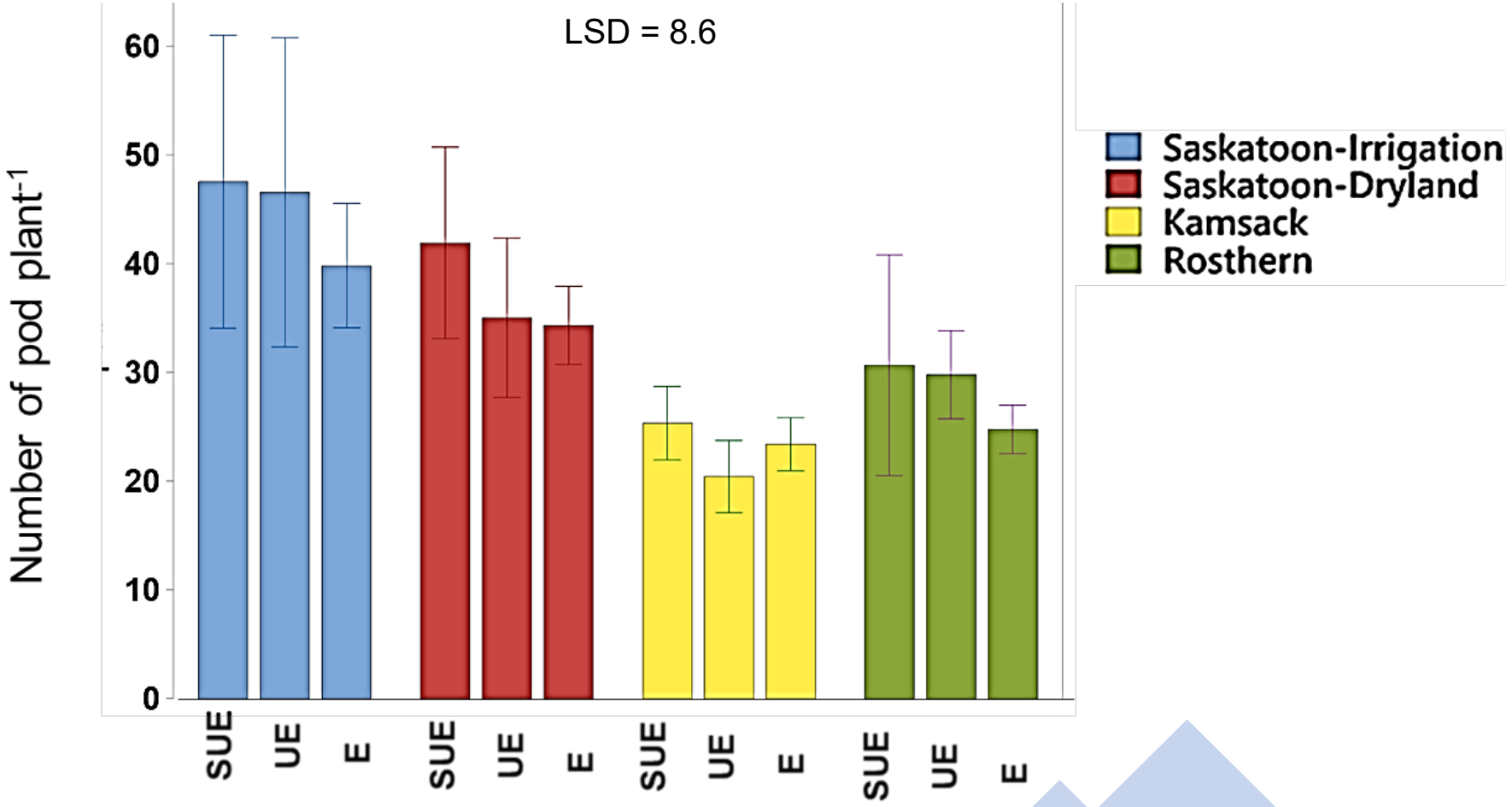


Seed size – SB Ros

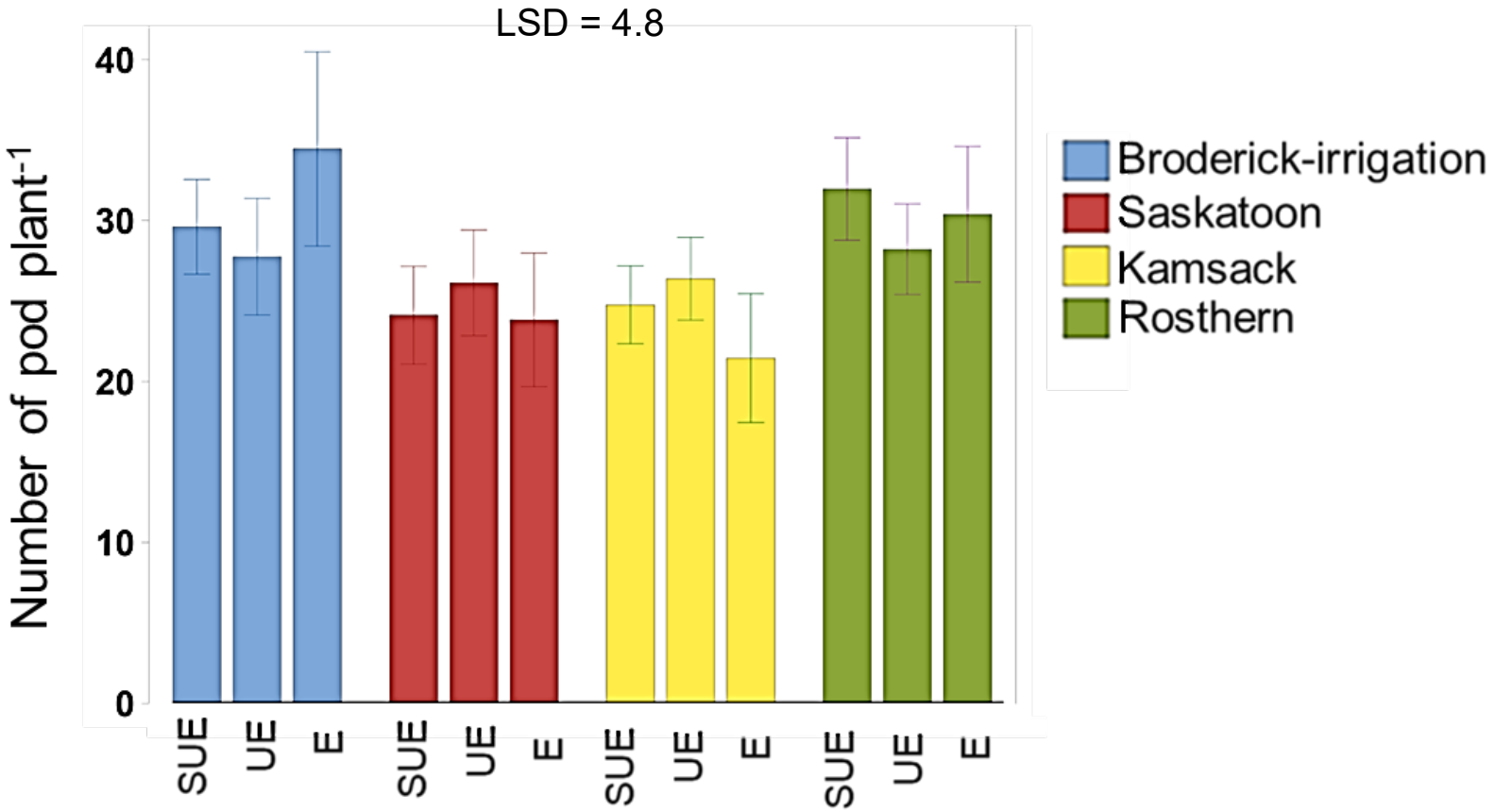
LSD = 0.008



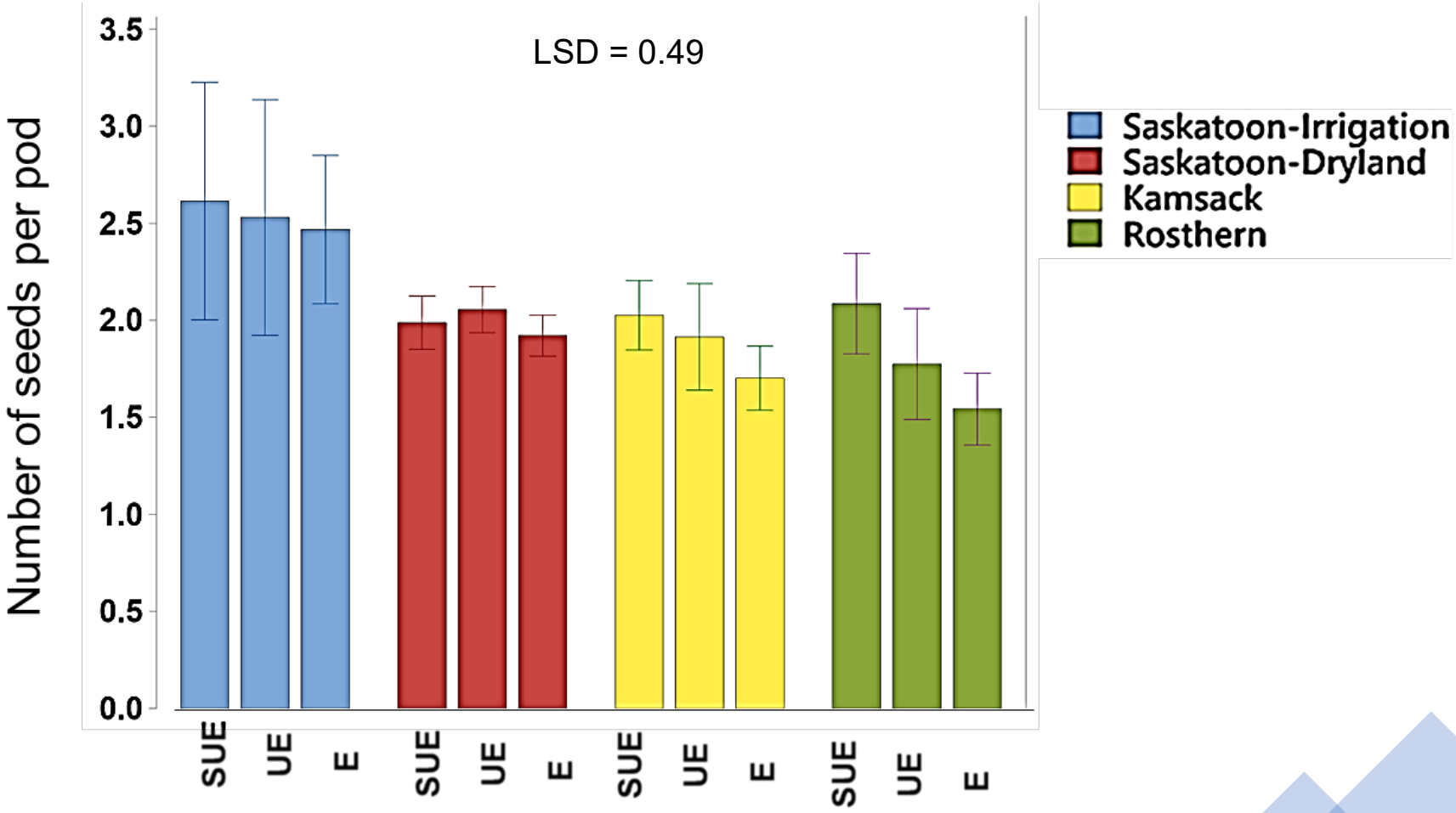
Pod count – SB Leo



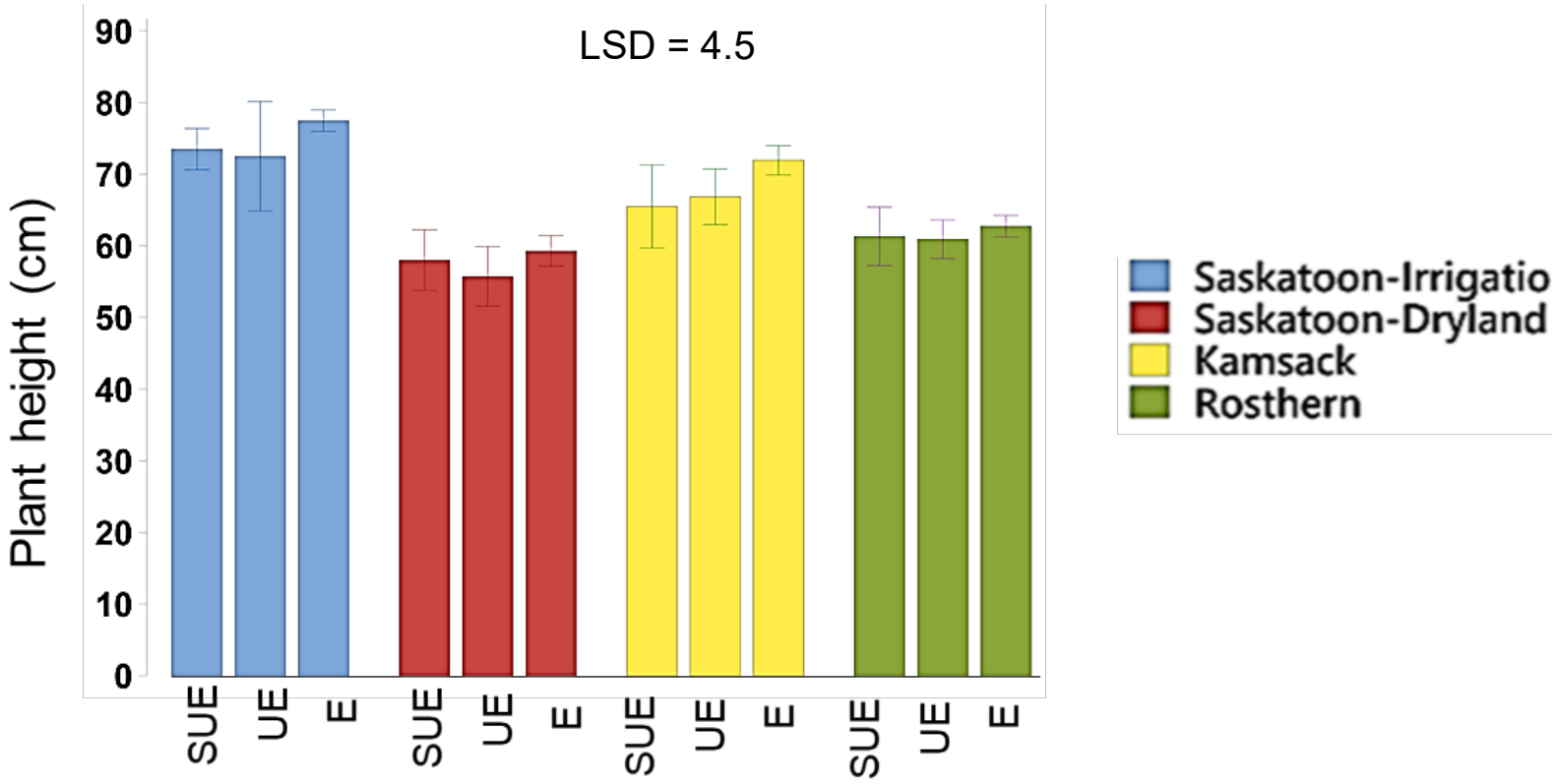
Pod count – SB Ros



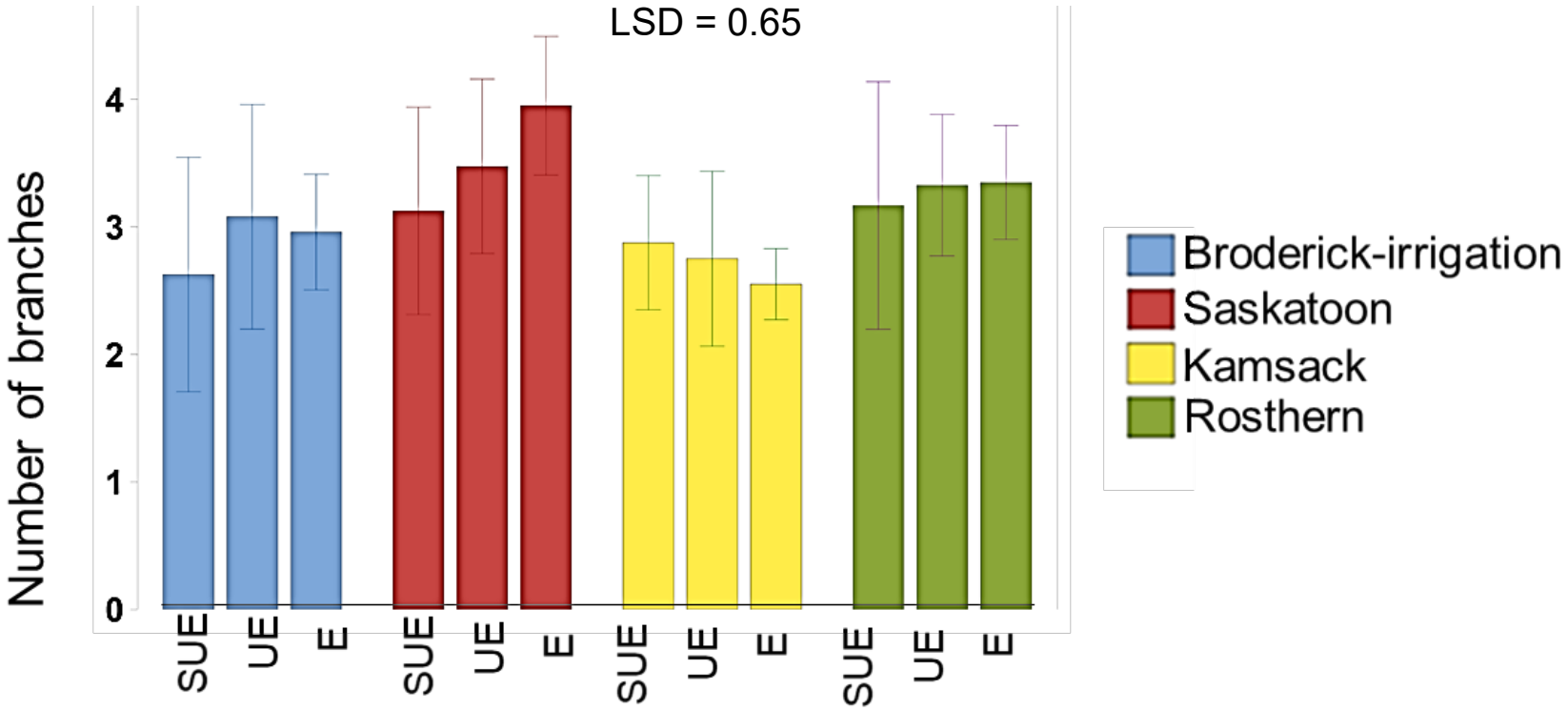
Seed per pod – SB Leo



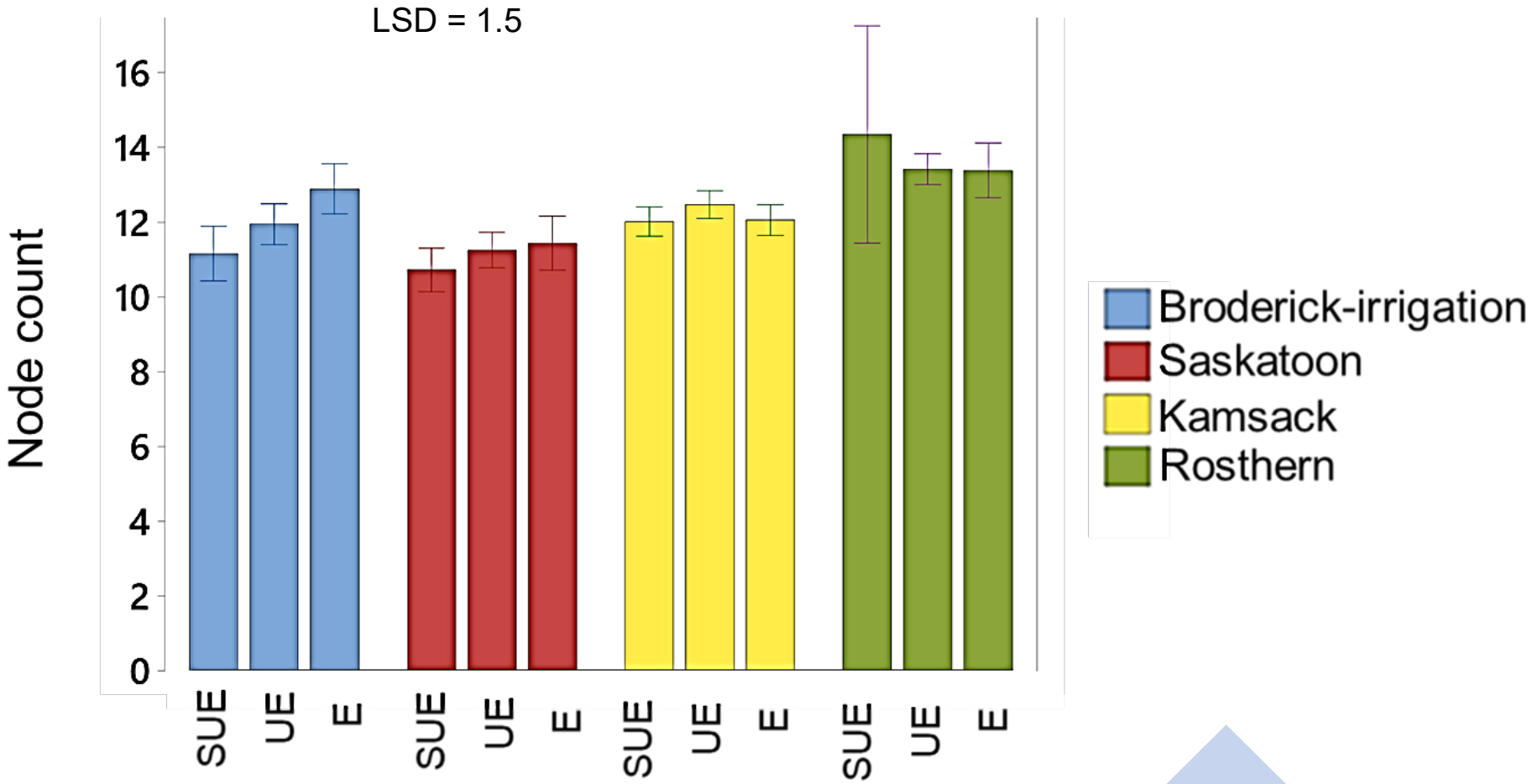
Plant height SB – SB Leo



Branches – SB Ros

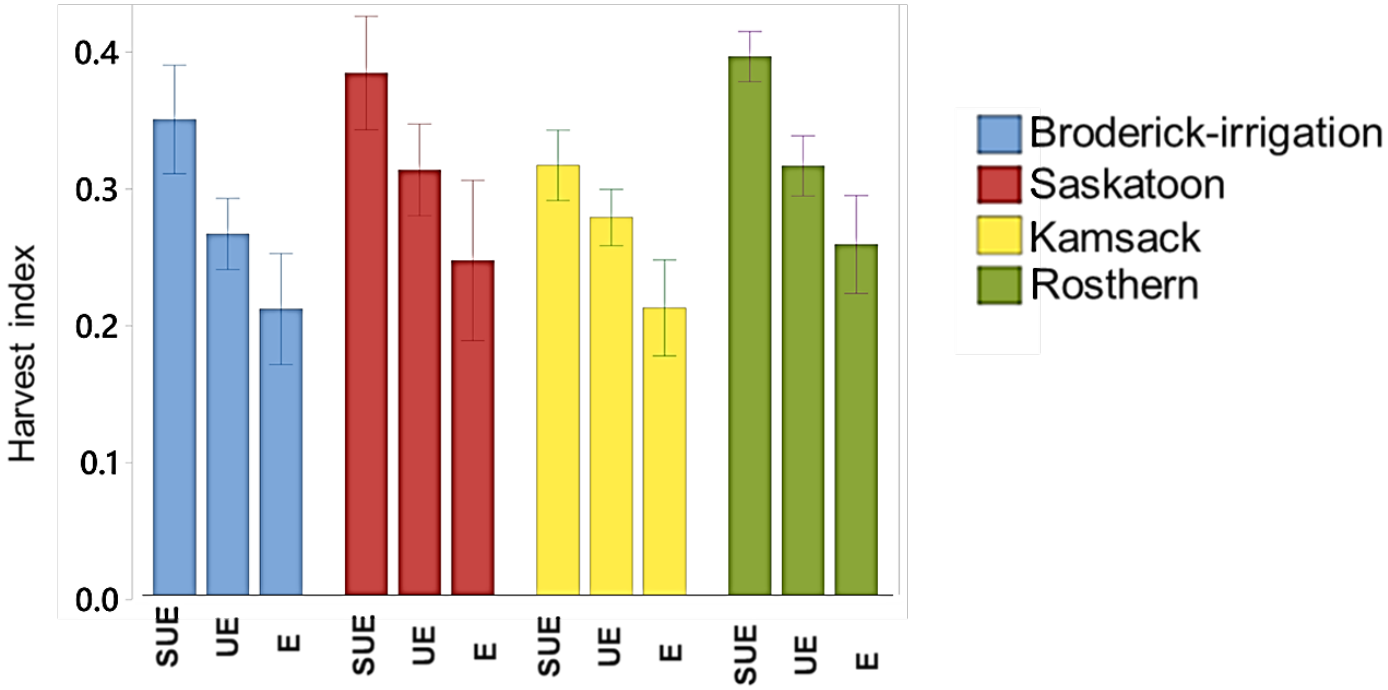


Node count – SB Ros

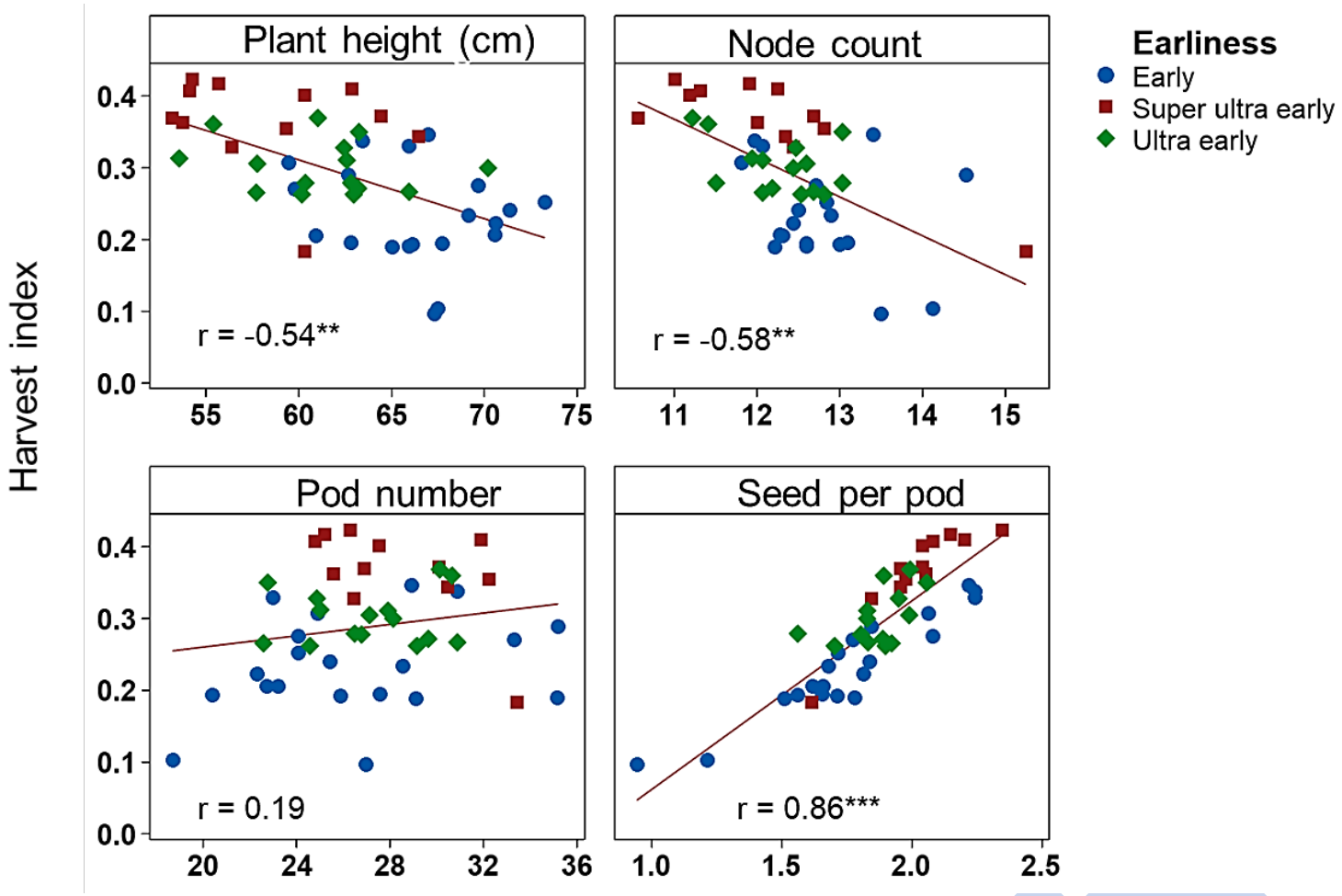


Harvest index – SB Ros

LSD = 0.045



Harvest index – SB Leo/Ros combined



Conclusions and future work

- Both environment and earliness significantly contribute to soybean yield and its components
- Soybean responds well to irrigation
- Kamsack 2019 performed lower for most traits
- Super ultra early (000) cultivars performed well in most yield related traits but early cultivars (0, 00) were taller with more biomass
- Measurements will continue in 2020, likely at more environments

Questions?
Comments?

Funding: CAP – CFCRA Soybean cluster
Saskatchewan Pulse Growers